CLAIMS

What is claimed is:

1. A method of restricting Address Resolution Protocol (ARP) table updates to updates originating from authorized subsystems, the method comprising:
receiving an instruction to update an ARP table;
determining whether a particular subsystem from which the instruction originated is authorized; and
if the particular subsystem is authorized, then updating the ARP table based on the instruction.

2. The method of Claim 1, wherein determining whether the particular subsystem is authorized comprises determining whether the particular subsystem is contained in a set of one or more specified subsystems.

3. The method of Claim 1, wherein determining whether the particular system is authorized comprises determining whether the particular subsystem is a Dynamic Host Configuration Protocol (DCHP) server.

4. The method of Claim 1, wherein determining whether the particular system is authorized comprises determining whether the particular subsystem is a Network Address Translator (NAT).

5. The method of Claim 1, wherein determining whether the particular system is authorized comprises determining whether the particular subsystem is an Authentication, Authorization, Accounting (AAA) server.

6. The method of Claim 1, further comprising:
if the particular subsystem is not authorized, then preventing the ARP table from being updated based on the instruction.

7. The method of Claim 1, further comprising:
if the particular subsystem is not authorized, then performing the steps of:

determining whether a particular network interface through which the instruction was received is contained in a set of one or more specified network interfaces;

if the particular network interface is contained in the set, then preventing the ARP table from being updated based on the instruction; and

if the particular network interface is not contained in the set, then updating the ARP table based on the instruction.

8. The method of Claim 1, further comprising:

if the particular subsystem is not authorized, then performing the steps of:

determining whether a particular network address indicated by the instruction is contained in a set of one or more specified network addresses;

if the particular network address is contained in the set, then preventing the ARP table from being updated based on the instruction; and

if the particular network address is not contained in the set, then updating the ARP table based on the instruction.

9. The method of Claim 1, further comprising:

determining whether a specified amount of time has passed since a time indicated by a timestamp associated with an entry in the ARP table; and

if the specified amount of time has passed, then removing the entry from the ARP table.

10. The method of Claim 1, wherein the ARP table is updated only in response to instructions that are not ARP messages.

11. The method of Claim 1, wherein determining whether the particular system is authorized comprises determining whether the particular subsystem is a Hypertext Transfer Protocol (HTTP) server.

12. A method of restricting Address Resolution Protocol (ARP) table updates to updates originating from authorized subsystems, the method comprising:

receiving an instruction to update an ARP table;

determining whether a particular network interface through which the instruction was received is contained in a set of one or more specified network interfaces;

determining whether a particular network address indicated by the instruction is contained in a set of one or more specified network addresses;

if the particular network interface is not contained in the set of one or more specified network interfaces, and if the particular network address indicated by the instruction is not contained in the set of one or more specified network addresses, then updating the ARP table based on the instruction; and

if the particular network interface is contained in the set of one or more specified network interfaces, of if the particular network address is contained in the set of one or more specified network addresses, then performing steps comprising:

determining whether a particular subsystem from which the instruction originated is authorized;

if the particular subsystem is authorized, then updating the ARP table based on the instruction; and

if the particular subsystem is not authorized, then preventing the ARP table from being updated based on the instruction.

13. The method of Claim 12, wherein receiving the instruction to update the ARP table comprises receiving an ARP message that indicates an association between a network layer address and a data link layer address.

14. A method of sending an instruction to update an Address Resolution Protocol (ARP) table in a system in which ARP table updates are restricted to updates originating from authorized subsystems, the method comprising:

receiving a Dynamic Host Configuration Protocol (DHCP) message that indicates a network layer address;

in response to receiving the message, determining whether the network layer address is bound with a data link layer address; and

if the network layer address is not bound with a data link layer address, then sending an instruction to update an ARP table.

15. The method of Claim 14, wherein the instruction is to update the ARP table to contain a binding between the network layer address and a data link layer address of a DHCP client that sent the message.

16. The method of Claim 14, further comprising:
determining whether a lease associated with the network layer address has expired; and
if the lease has expired, then sending an instruction to update the ARP table.

17. The method of Claim 14, further comprising:
determining whether a lease associated with the network layer address has expired; and
if the lease has expired, then sending an instruction to remove, from the ARP table, an entry that contains the network layer address.

18. The method of Claim 14, further comprising:
receiving a particular DHCP message that requests an extension of a lease; and
in response to receiving the particular DHCP message, sending an instruction to update the ARP table.

19. The method of Claim 14, further comprising:
receiving a particular DHCP message that relinquishes a lease; and
in response to receiving the particular DHCP message, sending an instruction to update the ARP table.

20. The method of Claim 14, further comprising:
if the network layer address is not bound with a data link layer address, then sending an instruction to start a process in connection with the network layer address.

21. The method of Claim 14, further comprising:
determining whether a lease associated with the network layer address has expired; and
if the lease has expired, then sending an instruction to stop a process in connection with the network layer address.

22. The method of Claim 14, further comprising:

receiving a particular DHCP message that relinquishes a lease; and

in response to receiving the particular DHCP message, sending an instruction to stop a process in connection with the network layer address.

23. A computer-readable medium carrying one or more sequences of instructions for restricting Address Resolution Protocol (ARP) table updates to updates originating from authorized subsystems, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

receiving an instruction to update an ARP table;

determining whether a particular subsystem from which the instruction originated is authorized;

if the particular subsystem is authorized, then updating the ARP table based on the instruction.

24. An apparatus for restricting Address Resolution Protocol (ARP) table updates to updates originating from authorized subsystems, comprising:

means for receiving an instruction to update an ARP table;

means for determining whether a particular subsystem from which the instruction originated is authorized; and

means for updating the ARP table based on the instruction if the particular subsystem is authorized.

25. An apparatus for restricting Address Resolution Protocol (ARP) table updates to updates originating from authorized subsystems, comprising:

a network interface that is coupled to a data network for receiving one or more packet flows therefrom;

a processor; and

one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:

receiving an instruction to update an ARP table;

determining whether a particular subsystem from which the instruction originated is authorized; and if the particular subsystem is authorized, then updating the ARP table based on the instruction.